SITE ASSESSMENT DECISION - EPA REGION 1

Site Name: KRODEL FOUNDRY EPA ID#: CTD145339958

Alias Site Names:

City: Waterbury County or Parish: State: CT

Refer to Report Dated: PA: SI: Sept. 17, 1993 Other (report type & date):

Report developed by: Weston ARCS

DECISION:

| | 1. Further Action under Superfund (CERCLA) is not appropriate or required because:

| | 1a. Site Evaluation Accomplished (SEA). | | 1b. Action Deferred to: | | RCRA | | NRC

| | 2. Further Investigation Needed Under Superfund: 2a. Priority: | | Higher | ✓ | Lower

2b. Activity Type: | | PA | | | SI | ✓ | ESI | | evaluate HRS score | | Other:

DISCUSSION/RATIONALE: Referred to EPA ESI for Removal Evaluation

Report Reviewed and Approved by: Signature: Date:

Site Decision Made by: J Anderson Signature: Date: 9-28-93

EPA Form # 9100-3

SDMS DocID 574650

Work Order No. 04100-009-056-0005
Revision 0

FINAL SITE INSPECTION REPORT
FOR
KRODEL FOUNDRY
WATERBURY, CONNECTICUT

CERCLIS No. CTD145339958
TDD No. 9105-79-AWS
Work Assignment No. 09-1JZZ

Prepared by:

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525 Brook Street
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September 17, 1993

WESTON/ARCS
Reviewed and Approved:

John Isell for MARTHA LEMMON 9/17/93
Task Manager Date

George J. Gurney for Jocelyn Boriel 9/17/93
Site Manager Date

R Kent Finkelstein 9/17/93
QA Review Date

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Waterbury, Connecticut

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Work Order No. 4100-09-56-0007

INTRODUCTION

The Roy F. Weston, Inc. Alternative Remedial Contract Strategy (WESTON/ARCS) team was requested by the Region I U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Site Inspection of Krodel Foundry property in Waterbury, Connecticut. All tasks were conducted in accordance with the ARCS contract, and the Site Inspection scope of work and technical specifications provided by the EPA under Work Assignment No. 09-1JZZ which was issued to WESTON/ARCS on March 26, 1991. NUS (NUS) Corporation prepared a Preliminary Assessment of Krodel Foundry on March 27, 1987. NUS recommended a high priority Site Inspection as a result of documented site contamination and the existence of potential receptors in close proximity to the site.

Background information used in the generation of this report was obtained through file searches conducted at the Connecticut Department of Environmental Protection (CT DEP) and the Region I EPA, interviews with town officials and individuals knowledgeable of the site history and characteristics, and conversations with other Federal, State and local agencies. Information was also collected during the WESTON/ARCS off-site reconnaissance conducted on October 22, 1992. Environmental sampling and an on-site reconnaissance was not performed because access was denied by the property owner.

This package follows guidelines developed under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State or local regulations. Site Inspections are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

The Krodel Foundry (Krodel) property is located on a half-acre parcel at 35 Pearl Lake Road in Waterbury, New Haven County, Connecticut (latitude 41° 1' 36" N, longitude 73° 02' 23" W) [1]. It is unknown whether the property was larger than one-half acre during foundry operations. Krodel manufactured brass, bronze and aluminum castings on-site from 1912 to 1984 [2]. Currently, the property is occupied by a 24 unit condominium complex (Figure 1).

The Krodel property is located within an area zoned for residential and commercial use [3]. The nearest residential units are located on the Krodel property. Another condominium complex is located adjacent to and south of the site. The property is bordered to the south by Pearl Lake Road and residential condominiums; to the west by Wayside Furniture, Anderson Auto Electric, D&D Driving School, Abbey's Refrigeration and Air Conditioning and a vacant warehouse

LOCATION MAP
KRODEL FOUNDRY
WATERBURY, CONNECTICUT

WESTON MANAGERS DESIGNERS/CONSULTANTS

FIGURE 1

building; to the north by P & M Graphics; and to the east by the Teamsters Vision Center, Sweet Life Foods distributorship, the Hair Express hair salon and Val's Diner (Figure 2) [1]. The Naugatuck River is located approximately 800 feet west of the Krodel property [1].

According to a 1986 Site Assessment performed by HRP Associates (HRP), the Krodel Foundry was present on-site from 1912 to 1988 [2]. Prior to demolition in 1988, there were five structures on-site (Figure 3). They included a pattern shop, two casting shops with four furnaces, one storage shed and one office building [7,8,9]. The exact construction dates of these buildings is unknown.

Prior to demolition in 1988, there were two aboveground storage tanks (ASTs) and one underground storage tank (UST), used for gasoline, present on site [2]. According to the HRP site assessment, the ASTs included a 4,300 gallon fuel AST containing less than one inch of product and a 600 gallon AST containing approximately three inches of product. The age of these tanks, their physical and presence of secondary containment is unknown. The site owner reported that the gasoline UST had a 300 gallon capacity and was installed sometime around 1961. It is unknown when or if the UST was removed from the site. Table 1 presents information regarding the storage tanks reported to have been on-site.

Table 1

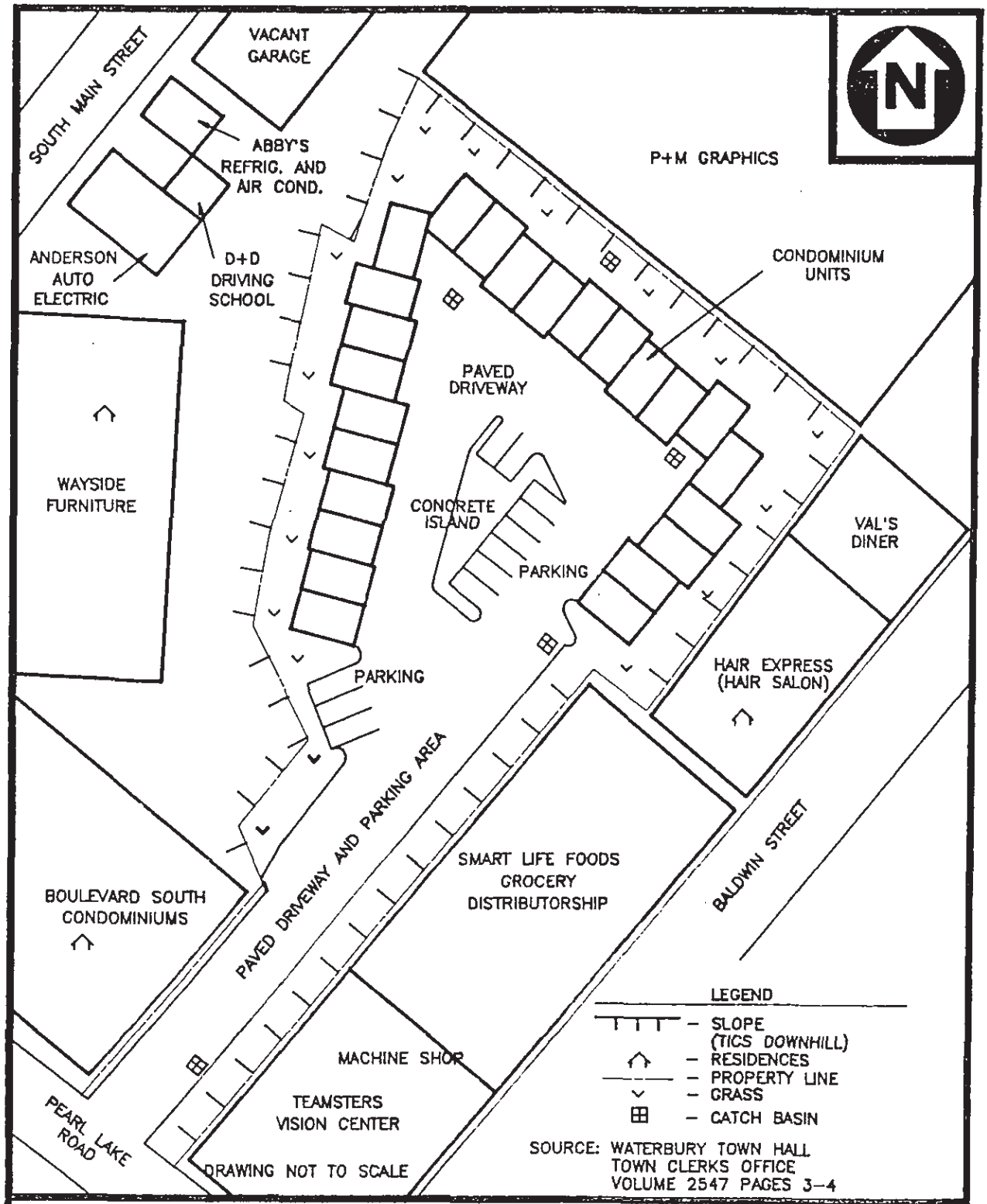
Storage Tanks at Krodel Foundry

Tank Size and Contents	Location	Installation Date	Removal Date
4,300 gallon fuel oil AST	Unknown	Unknown	Presumed before 1988
600 gallon fuel oil AST	Unknown	Unknown	Presumed before 1988
300 gallon gasoline UST	Unknown	Estimated 1961	Unknown

[2]

The Krodel property is currently occupied by 24 condominium units (Figure 3) [5]. Each condominium unit is constructed on a concrete-slab garage [6]. A paved driveway and parking lot exist on the property in good condition [1].

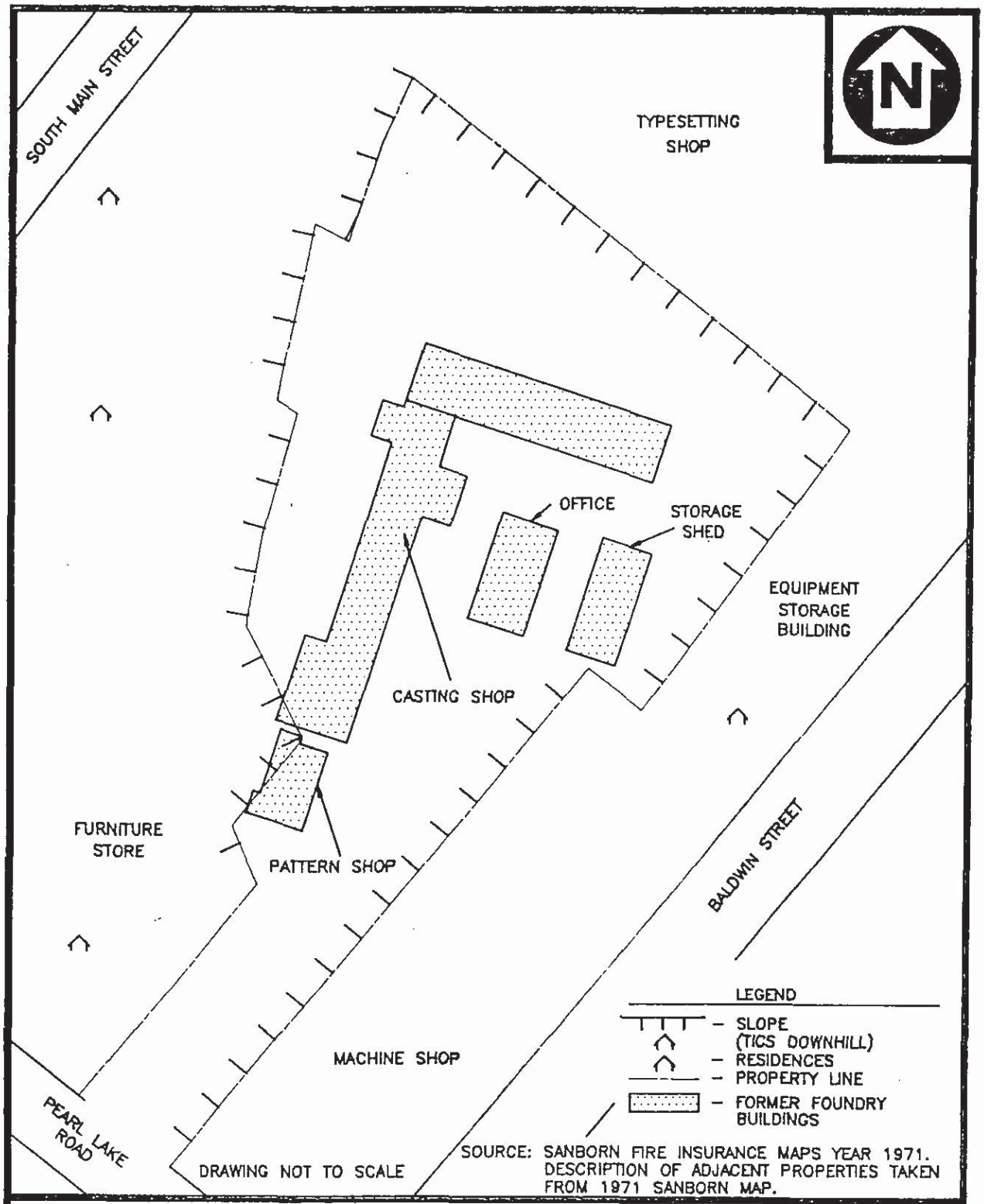
Elevation of the Krodel property is approximately 300 feet above mean sea level (MSL) [4]. The parcel is level with very steep slopes ascending to the north and east, a moderately steep slope descending to the west, and a driveway that gently slopes down toward Pearl Lake Road [1].



SITE SKETCH
KRODEL FOUNDRY
AFTER 1988
WATERBURY, CONNECTICUT

WESTON MANAGERS DESIGNERS/CONSULTANTS

FIGURE 2



SITE SKETCH
KRODEL FOUNDRY
PRIOR TO 1988
WATERBURY, CONNECTICUT

WESTON MANAGERS DESIGNERS/CONSULTANTS

FIGURE 3

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

William, Louis and George Krodel began operation of Krodel Foundry in 1912. Sometime between 1912 and 1985, the property was transferred to Mr. Edward Watkins II. The date of transfer could not be determined during the background investigation [11,13]. Mr. Watkins transferred the foundry property and its contents to Mr. Elliott Labovitz during foreclosure proceedings in November 1985 [11,12]. Mr. Labovitz originally planned to operate the foundry, but abandoned foundry operations and sold the facility and its contents to Raymond Antonacci, of the Boulevard South Group, in September 1987. The property was vacant from 1984 to 1988. Krodel Foundry was then demolished in January 1988 and a 24-unit residential condominium complex was constructed in 1988. Mark Guastaferri of American General Investors, currently owns the property. It is unknown when Mr. Guastaferri acquired the property [13].

The Krodel Foundry produced brass, bronze and aluminum castings from 1912 to 1986. Process occurring on-site during this time included pouring molten metal into prepared molds or forms and allowing the metal to solidify. Casting equipment used on-site included molding equipment, tools, patterns, and a furnace [14].

Virgin material necessary to produce the casting molds included sand with the necessary refractory properties to withstand the intense heat of the molten metal, bonding material to hold the sand grains together, and water to coalesce the sand grains and bonding material into a plastic molding material [14]. The composition of the bonding material is unknown.

The principle waste generated on-site included "spent" sand casting molds contaminated with various heavy metals and binding resins [14]. According to HRP, an estimated 72 cubic yards per year of spent sand castings were generated by Krodel Foundry. Information regarding the disposal history of the spent sand castings was not available. However, based on the HRP site assessment findings, it is assumed that spent sand castings were disposed on-site.

On January 15, 1986, HRP Associates (HRP) performed a site assessment of Krodel for a prospective buyer. According to the report, sand/soil piles and unsecured containers of virgin and waste material were observed throughout the property. The virgin and waste materials were not identified in the HRP report. HRP noted that an UST was present on-site. No other information concerning this UST was available.

On February 10, 1986, As a follow-up to the report of unsecured containers stored on the property, the CT DEP performed a site investigation. The CT DEP could not locate the unsecured drums of waste and virgin material reported in the HRP site assessment. The CT DEP questioned the site owner in a document dated February 24, 1986 as to whereabouts of containerized waste and virgin material reported in the HRP site assessment. The CT DEP requested copies of all shipping manifests or Connecticut Department of Transportation (CT DOT) shipping papers related to the missing containers. In a document dated April 14, 1986, the CT DEP again questioned the site owner concerning the whereabouts of the missing containers. On June 12, 1986, the CT DEP warned the site owner of their inadequate response to compliance and transportation issues associated with missing containers. Documentation resolving the location of the missing containers was not located in available files. It is unknown

whether the site owner responded to the CT DEP's concerns.

On February 13, 1986, HRP collected four soil samples to characterize possible contaminants in the sand/soil piles observed during the HRP January 15, 1986 site visit. Laboratory analysis of sand samples using E.P. Toxicity detected lead ranging between 4.80 and 33.56 milligram/liter (mg/L). This discovery prompted the site owner to contract DJP Associates to cleanup the contaminated waste piles. A Form II - Negative Declaration submitted to the CT DEP in August 1987 reported that 290 tons of hazardous material were removed and shipped to Ohio for disposal, and an estimated 75 cubic yards of non-hazardous material were shipped to a local Connecticut landfill. Determination of hazardous and non-hazardous waste was based on HRP sampling.

On March 27, 1987, A Final Preliminary Assessment of the Krodel Foundry was submitted to the EPA by NUS Corporation. The PA recommended a high priority Site Inspection be conducted as a result of site contamination and the existence of potential receptors in close proximity to the site.

On October 22, 1992, WESTON/ARCS performed an off-site reconnaissance of the Krodel Foundry property. An on-site reconnaissance and field sampling was not performed because the current site owner would not grant site access. On-site activities are summarized in Table 2.

Table 2

Documented Activities at Krodel Foundry

DATE	REGULATORY ACTIVITIES AT THE KRODEL FOUNDRY
January 15, 1986	HRP Associates Site Assessment
February 10, 1986	CT DEP Site Inspection
February 13, 1986	HRP Sampling Event
March 27, 1987	NUS Corporation Preliminary Assessment
October 22, 1992	WESTON/ARCS Off-site Reconnaissance

[1,2,15,16,17,18,19,20,21]

The Krodel Foundry has no Resource Conservation and Recovery Act (RCRA) status but is currently listed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS). There are thirty-three total known RCRA and CERCLIS sites located within one mile of Krodel. Twenty-three sites are potential RCRA sites; three sites are potential CERCLIS sites; and seven sites are both potential RCRA and CERCLIS sites. A list of these facilities is provided in Attachment A.

Krodel has been demolished and replaced with 24 residential condominium units. Previous

source area locations could not be identified. Suspected source areas were chosen based on the October 22, 1992 off-site reconnaissance and a review of information gathered during the background investigation. Potential source areas include the property's northwest corner where lead contaminated sand/soil piles were once known to exist; the entire Krodel property because it is suspected that spent sand castings were stockpiled or disposed on-site; the UST and ASTs known to have been on-site; and the moderately sloped embankment located at the subject property's west boundary where lead contaminated sand/soil were likely disposed.

Table 3 presents the identified areas on the Krodel property that are potential sources of contamination, their containment factors with each source, and the relevant locations of each source. Table 4 presents known hazardous waste quantities disposed on-site.

Table 3

Source Evaluation for the Krodel Foundry

Potential Source Area	Containment Factors	Spatial Location
Area where known lead contaminated soil was excavated.	None	Northwest corner of subject property.
Lead-contaminated soils suspected to still be present on-site.	Majority of property is covered with asphalt parking lot and condominium units.	Entire property.
Underground storage tank known to be present on-site prior to foundry demolition in 1988.	Unknown	Unknown
Aboveground storage tank known to be present on-site prior to foundry demolition in 1988.	Unknown	Unknown

[1,2,8,9,15]

Table 4

Known Hazardous Waste Quantities Disposed On-Site at Krodel Foundry

Substance	Quantity for Volume/Area	Years of Use/Storage	Years of Disposal	Source Areas
Spent Sand Castings	72 cy/yr	1912-1984	1912-1984	Entire property

cy/yr = Cubic Yards Per Year

GROUNDWATER PATHWAY

Bedrock in the property area is mapped as Waterbury Gneiss. This is a Cambrian aged unit consisting of fine-to-medium grained schist and gneiss [22,23]. Depth to bedrock is

approximately 50-feet below grade [24]. Based on the United States Geological Survey (USGS) topographic map of Waterbury, depth to groundwater is estimated to be 20 feet below grade, and flowing west toward the Naugatuck River [25].

Subsurface materials overlying bedrock at the subject property are described as stratified drift with a saturated thickness ranging from 40 to 80 feet. Stratified drift is a predominantly sorted sediment laid down by glacial meltwater. These materials include stratified sand and gravel and minor amounts of silt and clay exhibiting a variable degree of sorting [26,27]. Net annual precipitation is estimated to be twenty inches per year, including the effects of lake evaporation [28].

Groundwater quality immediately beneath Krodel has been classified as GB by the CT DEP [29]. Groundwater with this classification is currently not suitable for direct human consumption due to waste discharges, spills or leaks of chemical or land use impacts. Groundwater surrounding the Krodel property is also classified as GB [29].

According to HRP's Site Assessment, one private supply well was present on-site during HRP's January 1986 site visit and presumed abandoned. Its location, construction details and current status could not be determined during the background investigation [2]. The closest public supply well is 2.1 miles southeast of the Krodel Foundry property. There are eleven known private drinking water wells located within one-quarter mile of the subject property. Their locations could not be determined during the background investigation [25]. There are no known wellhead protection areas or blended water systems within four miles of the Krodel Foundry [25,28,29,30,31,32,33,34].

An estimated 13,239 people are served water by public and private water supply wells within four miles of the site [35]. The condominium residents and properties immediately surrounding the Krodel Foundry are served by the Waterbury Water Department which obtains water from reservoirs located in Waterbury, Watertown and Thomaston, Connecticut. Table 5 summarizes public groundwater supply sources within four miles of the Krodel Foundry [35]. Table 6 summarizes the estimated population served by all groundwater sources within four miles of the Krodel Foundry [35].

Table 5

Public Groundwater Supply Sources Within Four Miles of Krodel Foundry

Distance/Direction from Site	Source Name	Location of Source	Estimated Population Served	Source Type
1.7 miles SE	Highland Heights Water Co.	Prospect	NA	Abandoned
2.1 miles SE	Indian Field Co.	Prospect	140	Bedrock
2.1 miles SE	Indian Hill Water Co.	Naugatuck	2,460	Bedrock
3.2 miles SE	Country Manor Health Care Center.	Prospect	150	Bedrock
3.3 miles SW	Idleview Mobile Home Park	Naugatuck	138	Bedrock
3.7 miles W	Middlebury Commons	Middlebury	76	Bedrock
TOTAL			2,964	

NA = Not Applicable.
[24,35]

Table 6

Estimated Drinking Water Populations Served by Groundwater Sources Within Four Miles of Krodel Foundry

Radial Distance From Krodel Foundry (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Populations Served by Groundwater Sources Within the Ring
0.00 < 0.25	11	0	11
0.25 < 0.50	11	0	11
0.50 < 1.00	248	0	248
1.00 < 2.00	1,251	0	1,251
2.00 < 3.00	3,654	2,600	6,254
3.00 < 4.00	5,100	364	5,464
TOTAL	10,275	2,964	13,239

[25,28,29,30,31,32,33,34,35]

Groundwater use was determined by totalling the number of groundwater users in each of the Census Block Groups in each of the distance rings. Census Block Group data were also used

to determine the number of people using private wells within each distance ring. Populations using municipal well water within each ring were based on totals from the "Atlas of Public Water Supply Sources and Drainage Basins in Connecticut" compiled by the CT DEP and Connecticut Department of Health (CT DOH) municipal water user data [35,36].

No known groundwater sampling has been conducted on the property to date and no groundwater violations are on file in the CT DEP or EPA files [13].

SURFACE WATER PATHWAY

The Naugatuck River is located approximately 800 feet west of Krodel. According to the Flood Insurance Rate Maps (FIRM) published by the Federal Emergency Management Agency (FEMA), the property is located in a Zone C, or an area of minimal flooding outside the 500 year the floodplain [13].

Most of the property is covered with condominium buildings and asphalt in good condition [1]. Stormwater infiltration is likely to occur in the grassy areas throughout the property [1]. The overland flow route likely begins on the subject property's east boundary as sheet flow from the ascending slope [1]. Sheet flow off the embankment migrates overland from east to west. Storm water then flows into storm sewers along the north and east boundary which feed into storm sewers along Pearl Lake Road before discharging into the Naugatuck River 800 feet west of the site. It is possible that lead contaminated sand may have been washed down the slope embankment located on the west side of the property and subsequently migrated off-site at this location.

The most upstream Probable Point of Entry (PPE) area is along the east bank of the Naugatuck River near the intersection of Pearl Lake Road and South Main Street. The surface water migration pathway begins at the Naugatuck River and follows the Naugatuck River for fifteen miles [4]. The end of the 15 mile surface water migration pathway is in the Naugatuck River in Ansonia, Connecticut [4,37,38].

The Naugatuck River is classified as a Class C/B by the CT DEP, indicating water is suitable for certain fish and wildlife habitats, agricultural and industrial supply [22]. Classification C/B may preclude swimming and indicates that one or more quality criteria is impaired [22]. The CT DEP goal is to upgrade these waters to Class B [22]. Table 7 presents water bodies within the surface water pathway of the Krodel Foundry.

Table 7

Water Bodies Within the Surface Water Segment of the Krodel Foundry

Surface Water Body	Description[a]	Length of Reach	Flow Characteristics (cfs)[b]	Length of Wetlands
Naugatuck River	Moderate to Large Stream	15 miles	501	None

[a]Minimal stream. Small to moderate stream. Moderate to large stream. Large stream to river. Very large river. Coastal tidal waters. Shallow ocean zone or Great Lake. Deep ocean zone or Great Lake. Three-mile mixing zone in quiet river.
[b]Cubic feet per second.
[4,39]

The average flow of the Naugatuck River at the Beacon Falls, Connecticut gauging station is approximately 501 cubic feet per second (ft^3/sec), defining the Naugatuck River as a moderate to large stream [39]. The Beacon Falls gauging station is approximately 6 miles south of Krodel in the Naugatuck River [4]. There are no surface water intakes in the Naugatuck River along the 15 mile surface water migration pathway [36]. The CT DEP surface water classification of C/B precludes the use of the Naugatuck River as a drinking water supply source [22]. Although there are no known fisheries, the Naugatuck River is suitable as a recreational fishery.

There are three known sensitive environments within four miles of the subject property, including Pritchard Pond and Hills Pond, located approximately 2,000 feet east of Krodel. Hopeville Pond Brook, located approximately 400 feet south of the Krodel Foundry, discharges into the Naugatuck River [4]. Two wetland areas are known to exist within one mile of the Krodel property. None of these areas are part of the 15-mile downstream pathway.

No wetlands are known to exist along the 15-mile surface water pathway. However, the Naugatuck State Forest, a potential sensitive environment, is located on both sides of the Naugatuck River with an estimated total frontage of four miles [37]. There are no CT DEP Natural Diversity Database Points (NDDB) within one mile of the property [40]. An NDDB point represents State or Federally listed endangered, threatened or special concern species or habitat [40]. Natural Diversity Database information for the 15 mile downstream pathway was unavailable [40].

To date, no surface water/sediment sampling has been conducted on the Krodel Foundry property.

SOIL EXPOSURE PATHWAY

An estimated 96 people currently reside on the property. Land use within one-half mile of Krodel is residential, commercial and light industrial. An estimated 10,919 people reside within one mile of the Krodel Foundry property. There are no known schools or day-care facilities

located within 200 feet of areas of observed contamination [1,4]. The closest school is approximately one-half mile to the east of the property [41,42,43]. There are two additional schools located within one mile of the Krodel Foundry facility [41,42,43]. There is no evidence of terrestrial sensitive environments on or near areas of observed contamination [1,4].

On February 13, 1986, HRP collected four soil samples from spent sand piles reported in the January Site Assessment. The laboratory data showed lead in excess of the E.P. Toxicity Rule (0.5 mg/L). Based on the laboratory data, the site owner contracted DJP Associates to remediate the affected areas. Correspondences between the site owner and the CT DEP indicated DJP Associates performed cleanup activities during the summer of 1987; confirmatory soil sampling was performed in June 1987. A Form II - Negative Declaration submitted to the CT DEP in August 1987 reported that 290 tons of hazardous material, were removed and shipped to Ohio for disposal. An estimated 75 cubic yards of non-hazardous material were shipped to a local Connecticut landfill. Materials removed from the property consisted of spent sand castings. Determination of hazardous materials was based on sampling performed by HRP in 1986.

WESTON/ARCS could not collect any soil samples at the subject property because the property's current owner, would not grant access on to the property.

AIR PATHWAY

An estimated 96 people reside on the subject property. An estimated 100 people reside within 500 feet of the property and an estimated 80 persons work for commercial/industrial businesses within 150 feet of the Krodel Foundry property [1]. There are an estimated 830 students within one mile of Krodel [41,42,43]. Worker population information within four miles of Krodel Foundry was not available. Table 8 shows estimated populations within four miles of Krodel Foundry.

Table 8

Estimated Population Within Four Miles of Krodel Foundry

Radial Distance From Krodel Foundry (miles)	Estimated Population
0.00 < 0.25	*548
0.25 < 0.50	1,234
0.50 < 1.00	9,137
1.00 < 2.00	29,983
2.00 < 3.00	54,647
3.00 < 4.00	36,053
TOTAL	131,603

*Includes on-site residents.
[35]

Two wetlands are known to exist within one mile of Krodel property. The nearest wetland is located approximately 2,000 feet east (upgradient) of Krodel and estimated to be 20 acres [4]. A second wetland is located 4,000 feet southeast of the subject property and is estimated to be 11 acres [4]. The nearest sensitive environment is the Naugatuck State Forest, located on the Naugatuck River, six miles south of the Krodel property [37].

To date, no air sampling has been conducted on Krodel Foundry property.

SUMMARY AND CONCLUSIONS

The Krodel Foundry (Krodel) is located on a half-acre parcel at 35 Pearl Lake Road in Waterbury, New Haven County, Connecticut. The property is currently occupied by 24 condominium units. Krodel was established in 1912 to provide brass, bronze and aluminum casting services. Prior to Krodel's demolition in 1988, five foundry structures were located on-site. They included a pattern shop, two casting shops which shared four furnaces, one storage shed and one office building.

Molten metal was cast in moldings consisting primarily of sand. Virgin material necessary to produce the castings included sand with the necessary refractory properties to withstand the intense heat of the molten metal, bonding material added to the sand to hold the sand grains together, and water to coalesce the sand grains and bonding material into a plastic molding material.

The principle waste generated on-site was "spent" sand contaminated with various heavy metals and binding resins. According to the HRP Associates (HRP) Site Assessment, an estimated 72

cubic yards per year of spent sand castings were generated by Krodel Foundry. Information regarding the disposal of the spent sand castings was not available. Based on the HRP Site Assessment, it is assumed spent sand castings were disposed of on-site.

Suspected source areas were determined based on the October 22, 1992 off-site reconnaissance and a review of information gathered during the background investigation. Potential source areas include the property's northwest corner where lead contaminated sand/soil piles were once known to exist; the entire Krodel property because it is suspected spent sand castings were stockpiled or disposed on-site prior to disposal at a CT DEP approved landfill; the UST and ASTs known to have been on-site prior to foundry demolition in 1988; and the moderately sloped embankment located at the subject property's west boundary where lead contaminated sand/soil were likely disposed.

On February 13, 1986, HRP collected four soil samples from the sand piles reported in the January Site Assessment, on February 13, 1986. The laboratory data indicated the presence of lead (33.56 milligrams per liter [mg/L]) in excess of the E.P. Toxicity Rule (0.5 mg/L). Based on the laboratory data, the site owner contracted DJP Associates to remediate the affected areas. Correspondences between the site owner and the CT DEP indicate DJP Associates performed cleanup activities during the summer of 1987. Confirmatory soil sampling was performed in June 1987. A Form II - Negative Declaration submitted to the CT DEP in August 1987 reported 290 tons of hazardous material were removed and shipped to Ohio for disposal, and an estimated 75 cubic yards of non-hazardous material were shipped to a Connecticut landfill approved by the CT DEP.

Prior to 1988, two aboveground storage tanks (AST) and one gasoline underground storage tank (UST) were present on site. According to the HRP site assessment, a 4,300 gallon fuel oil AST of unknown age contained less than one-inch of product. Another 600 gallon AST, of unknown age, contained less than three inches of product. The site owner reported the gasoline UST to be 300 gallons and installed sometime around 1961. It is unknown when the tanks were removed and how/where they were disposed.

The closest public supply well is located 2.1 miles southeast of Krodel. The location of the nearest active private drinking water well is unknown, however, 11 private wells are located within one-quarter mile of the subject property. According to the HRP Site Assessment, one private supply well was present on-site in 1986. This well is presumed abandoned. There are no known wellhead protection areas or blended water systems within four miles of the subject property. An estimated 13,239 people are served water by public and private water supply wells within four miles of the site. The properties immediately surrounding Krodel are served by the Waterbury Water Department which obtains water from reservoirs located in Waterbury, Watertown and Thomaston, Connecticut.

It was determined during the surface water pathway background investigation, that storm water runoff on the Krodel property likely collects in storm sewers along the north and east boundary which feed into storm sewers along Pearl Lake Road before discharging into the Naugatuck River. It is possible that spent sand castings have been washed down a moderate embankment on the west side of the property and subsequently have migrated off-site. The most Probable Point of Entry (PPE) is along the east bank of the Naugatuck River near the intersection of Pearl

Lake Road and South Main Street. The surface water migration pathway begins at the Naugatuck River and follows the Naugatuck River for 15 miles. The end of the 15-mile surface water migration pathway is in the Naugatuck River in Ansonia, Connecticut.

Currently, the nearest residences reside on the subject property. Another condominium is located adjacent and south of the Krodel property. There are approximately 96 people residing on the subject property. There are no known schools or day-care facilities located within 200 feet of areas of observed contamination. An estimated 10,919 people live within one mile and 131,053 people live within four miles of the subject property. According to the CT DEP Natural Diversity Data Base (NDDB) there are no Federal or State endangered, threatened or special concern species within one mile of the Krodel Foundry.

Sampling for this site inspection was not performed by WESTON/ARCS because the subject property's current owner would not grant WESTON/ARCS personnel access onto the property.

REFERENCES

[1] Lemmon, M. (WESTON/ARCS). 1992. Field Log Book - Krodel Foundry, Inc. TDD No. 9105-79-AWS. October 22.

[2] HRP Associates, Inc. 1986. Site Assessment Report of the Krodel Foundry, Inc. January 20.

[3] City of Waterbury - Bureau of Engineering. June 18, 1992, RE: October 1932 Site Plan.

[4] USGS (United States Geological Survey). 1968. Waterbury Quadrangle, Connecticut. 7.5 minute series. Photorevised 1984. (Topographic)

[5] Lemmon, M. (WESTON/ARCS). 1993. Telephone conversation with Waterbury Town Hall Building Department, RE: Condominium occupancy. TDD No. 9105-79-AWS. January 8.

[6] Wilcox, W. (WESTON/ARCS). 1992. Telephone conversation with Mr. Gil Graveline (Waterbury Town Hall Building Department), RE: Condominium construction. TDD No. 9105-79-AWS. June 8.

[7] EDR. (Environmental Data Resources). 1992. Sanborn Fire Insurance Maps dated 1922, 1950, 1956, 1967, 1971, 1972 and 1977.

[8] DJP Associates, Ltd. 1987. Sample location map. May 15.

[9] HRP Associates, Inc. 1986. Sample location map. February 28.

[10] Lemmon, M. (WESTON/ARCS). 1992. Waterbury Town Hall Land Records, RE: Original site map dated October 1932.

[11] Wilcox, W. (WESTON/ARCS). 1992. Waterbury Town Hall, RE: Background title search. August 1992.

[12] Keefe, Joseph F. (Smith & Keefe, Counselors at Law). 1986. Letter to the Connecticut Department of Environmental Protection regarding Krodel Foundry foreclosure. March 4.

[13] Wilcox, W. (WESTON/ARCS). 1992. Notes of local, State and Federal records including the City of Waterbury Tax Assessor's Office, Engineer's Office and City Clerks Office; Connecticut Department of Environmental Protection Units: Water Compliance, Hazardous Waste, Air Quality, PCBs, Oil and Chemical spills, Leaking Underground Storage Tanks, Underground Storage Tanks, Superfund and Hazardous Waste.

[14] Doyle, Keyser, Leach, Schrader and Singer. Manufacturing Processes and Materials for Engineers, third edition. 1985. Page 120.

REFERENCES
(Continued)

[15] Hanahan, Robert P. (Shae & Hanahan, Attorneys at Law). 1986. Document states concern of underground storage tank on-site. January 31.

[16] CT DEP (Connecticut Department of Environmental Protection - Hazardous Waste Management Section). 1986. Letter to owner requesting whereabouts of missing containers. February 24.

[17] CT DEP (Connecticut Department of Environmental Protection - Hazardous Waste Management Section). 1986. Document to site owner's attorney requesting answers to February 24 document. June 12.

[18] CT DEP (Connecticut Department of Environmental Protection - Hazardous Waste Management Section). 1986. Document to site owner's attorney requesting a response to February 24 and April 12, 1986 documents. June 12.

[19] HRP Associates, Inc. 1986. February 28, 1986 document reporting February 13, 1986 sampling event and data analysis.

[20] Form II - Negative Declaration. 1987. Document states quantity and disposal location of hazardous and non-hazardous material excavated from Krodel Foundry site. Page 2. August 19.

[21] NUS Corporation. 1987. Preliminary Assessment of the Krodel Foundry. March 27.

[22] CT DEP (Connecticut Department of Environmental Protection - Water Compliance Unit). 1987. "Water Quality Classifications Map of Connecticut".

[23] Royer, R. (WESTON/ARCS). 1992. Telephone conversation with Ms. Pam Sully, (Connecticut Department of Environmental Protection - Department of Health Services), RE: Supply wells within 4 miles of Krodel Foundry. TDD No. 9105-79-AWS. February 1992.

[24] CT DEP (Connecticut Department of Environmental Protection - Department of Health Services - Water Supply Section - All Utilities). 1992. Estimated population served. February 11.

[25] Cook, D. (WESTON/ARCS). 1992. Search of Waterbury Town records and discussions with local officials, RE: Private well population for Town of Waterbury. February 11.

[26] "State Geological and Natural History Survey of Connecticut". 1967. Quadrangle Report Number 22.

REFERENCES
(Continued)

[27] Stone, R.J. et al. (Connecticut Department of Environmental Protection - Geological and Natural History Survey). 1992. "Surficial Materials Map of Connecticut".

[28] Feltovic, W. (WESTON/ARCS). 1992. Search of Wolcott Town records and discussions with local officials, RE: Private well population for Town of Wolcott. TDD No. 9105-79-AWS. June 1992.

[29] Cook, D. (WESTON/ARCS). 1992. Search of Prospect Town records and discussions with local officials, RE: Private well population for Town of Prospect. TDD No. 9105-79-AWS. February 11.

[30] Cook, D. (WESTON/ARCS). 1992. Search of Naugatuck Town records and discussions with local officials, RE: Private well population for Town of Naugatuck. TDD No. 9105-79-AWS. March 11.

[31] Cook, D. (WESTON/ARCS). 1992. Search of Middlebury Town records and discussions with local officials, RE: Private well population for Town of Middlebury. TDD No. 9105-79-AWS. February 11.

[32] Royer, R. (WESTON/ARCS). 1992. Telephone conversation with Ms. Betty Von Kelsey (Office Manager) at the South Central Connecticut Water Authority, RE: Population within Cheshire. TDD No. 9105-79-AWS. October 13.

[33] Royer, R. (WESTON/ARCS). 1992. Telephone conversation with Ms. Vivian Corrano at the South Central Connecticut Water Authority, RE: Private well population within the Town of Cheshire. TDD No. 9105-79-AWS. October 13.

[34] CT DOH. (Connecticut Department of Health - Water Supply Section - All Utilities). 1992. Private well population for Town of Cheshire. February 11.

[35] Frost, R. (Frost Associates). 1993. Census tract database printout of populations and private drinking water populations within four miles of Krodel Foundry. Print out dated March 1993.

[36] Sternberg, H. (Natural Resources Center - Connecticut Department of Environmental Protection - Water Resources Division). 1984. "Water Systems in Connecticut."

[37] USGS. (United States Geological Survey). 1964. Naugatuck Quadrangle, Connecticut. 7.5 minute series. Photorevised 1984. (Topographic)

[38] USGS. (United States Geological Survey). 1964. Ansonia Quadrangle, Connecticut. 7.5 minute series. Photorevised 1984. (Topographic)

REFERENCES
(Concluded)

[39] US DOI. (United States Department of Interior). 1990. USGS Water: Data Report (CT-89-1). Water discharge records for the Naugatuck River at Beacon Falls, Connecticut.

[40] CT DEP (Connecticut Department of Environmental Protection). 1992. Natural Diversity Database point listing for the Krodel Foundry. List printed September 1992.

[41] Lemmon, M. (WESTON/ARCS). 1992. Telephone conversation with Ms. Martin at Hopeville Elementary School, RE: School student population. TDD No. 9105-79-AWS. December 18.

[42] Lemmon, M. (WESTON/ARCS). 1992. Telephone conversation with Ms. Johnson at Tinker School, RE: School student population. TDD No. 9105-79-AWS. December 18.

[43] Lemmon, M. (WESTON/ARCS). 1992. Telephone conversation with Ms. VanSummern at Gilmartin Elementary School, RE: School student population. TDD No. 9105-79-AWS. December 18.